

FORM PTO-1390  
(REV 10-94)

DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

KEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

3164.141USWO

09/720098

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

Unknown

INTERNATIONAL APPLICATION NO.

PCT/AU99/00546

INTERNATIONAL FILING DATE

July 7, 1999

PRIORITY DATE CLAIMED

July 7, 1998

TITLE OF INVENTION

PROCESS FOR CHLORINE RECOVERY

APPLICANT(S) FOR DO/EO/US

RAJAKUMAR et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An unsigned oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11. to 16. below concern document(s) or information included:**

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: 6 Sheets of Formal Drawings; Courtesy copy of PCT/AU99/00546; PCT/ISA/210; PCT Request; PCT Power of Attorney; PCT/IPEA/401; PCT/IPEA/408; PCT/IPEA/409

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) Unknown <b>09/720098</b>		INTERNATIONAL APPLICATION NO. PCT/AU99/00546		ATTORNEY'S DOCKET NUMBER 316 <b>USWO</b>	
17. <input checked="" type="checkbox"/> The following fees are submitted:  <b>BASIC NATIONAL FEE (37 CFR 1.492(a) (1)-(5)):</b> Search Report has been prepared by the EPO or JPO.....\$860.00  International preliminary examination fee paid to U.S. Patent and Trademark Office (37 CFR 1.492(a)(1)).....\$690.00  No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$710.00  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(3)) paid to USPTO.....\$1000.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....\$100.00				<b>CALCULATIONS PTO USE ONLY</b>	
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				<b>\$1000.00</b>	
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				<b>\$</b>	
<b>CLAIMS</b>	<b>NUMBER FILED</b>	<b>NUMBER EXTRA</b>	<b>RATE</b>		
Total claims	12 -20 = 0		X \$18.00	<b>\$</b>	
Independent claims	3 -3 = 0		X \$80.00	<b>\$</b>	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	<b>\$</b>	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				<b>\$1000.00</b>	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				<b>\$</b>	
<b>SUBTOTAL =</b>				<b>\$1000.00</b>	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				<b>+ \$</b>	
<b>TOTAL NATIONAL FEE =</b>				<b>\$1000.00</b>	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				<b>+ \$</b>	
The PTO did not receive the following listed item(s) <b>TOTAL FEES ENCLOSED =</b> <div style="border: 1px solid black; padding: 5px; display: inline-block;">           no check         </div>				<b>\$1000.00</b>	
				<b>Amount to be:</b>	
				<b>refunded</b>	<b>\$</b>
				<b>charged</b>	<b>\$</b>
a. <input checked="" type="checkbox"/> Check(s) in the amount of <u>\$1000.00</u> to cover the above fees is enclosed.  b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.  c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>13-2725</u> .					
<b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</b>					
SEND ALL CORRESPONDENCE TO: Brian H. Batzli MERCHANT & GOULD P.O. Box 2903 Minneapolis, MN 55402-0903					
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

09/720098

Applicant: RAJAKUMAR et al.  
 Docket: 3164.141USWO  
 Title: PROCESS FOR CHLORINE RECOVERY

## CERTIFICATE UNDER 37 CFR 1.10

'Express Mail' mailing label number: EL658339519US

Date of Deposit: December 20, 2000

I hereby certify that this paper or fee is being deposited with the United States Postal Service 'Express Mail Post Office To Addressee' service under 37 CFR 1.10 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

By:

Name: Chatia Lambert

Brant Miles

BOX PCT  
 Assistant Commissioner for Patents  
 Washington, D.C. 20231

Sir:

We are transmitting herewith the attached:

- ☒ Transmittal sheet, in duplicate, containing Certificate under 37 CFR 1.10.
- ☒ National Stage PCT Patent Application: Spec. 21 pgs; 12 claims; Abstract 1 pgs.  
The fee has been calculated as shown below in the 'Claims as Filed' table.
- ☒ 6 sheets of formal drawings
- ☒ An unsigned Combined Declaration and Power of Attorney
- ☒ A check in the amount of \$1000.00 to cover the Filing Fee
- ☒ Other: Preliminary Amendment; Form PTO-1390; Courtesy copy of PCT/AU99/00546; PCT/ISA/210; PCT Request; PCT Power of Attorney; PCT/IPEA/401; PCT/IPEA/408; PCT/IPEA/409
- ☒ Return postcard

## CLAIMS AS FILED

Number of Claims Filed		In Excess of:		Number Extra		Rate		Fee
Basic Filing Fee								\$1000.00
Total Claims								
12	-	20	=	0	x	0.00	=	\$0.00
Independent Claims								
3	-	3	=	0	x	0.00	=	\$0.00
MULTIPLE DEPENDENT CLAIM FEE								\$0.00
TOTAL FILING FEE								\$1000.00

Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725. A duplicate of this sheet is enclosed.

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The Commissioner of Patents

28 June 2000

Sir

IN THE MATTER OF International Patent Application No. PCT/AU99/00546  
in the name of COMMONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANISATION  
Entitled PROCESS FOR CHLORINE RECOVERY  
Our Ref: JGB:LM:FP11220

We refer to the Examiner's first Written Opinion.

Claim 1 of the present application defines a process for recovering chlorine gas from chlorinated waste. The process includes the step of forming a fluidised bed of chlorinated waste in a fluidising gas containing oxygen and treating the chlorinated waste with oxygen under conditions which promote conversion of metal chlorides into metal oxides and discourage oxidation of carbon contained in the waste. The conditions which promote conversion of metal chlorides into metal oxides and discourage oxidation of carbon contained in the waste include the following process parameters:

1. Superficial velocity of the fluidising gas in the fluidised bed;
2. The proportion of oxygen in the gas fed to the fluidised bed;
3. The oxygen to chlorinator waste feed ratio; and
4. The temperature within the fluidised bed.

Preferably the temperature in the fluidised bed lies in the range from 400 to 700°C, the superficial velocity of fluidising gas lies in the range from 0.2 to 1 metres per second and the oxygen to chlorinator waste stoichiometric ratio lies in the range from 0.2 to 1.2. Further discussion about the selection of appropriate reaction parameters can be found in the description.

The specification of Australian Patent Application No. 30628/77 does not disclose a process which includes the step of forming a fluidised bed of chlorinator waste in a fluidising gas containing oxygen and treating the chlorinator waste with oxygen under

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conditions which promote conversion of metal chlorides into metal oxides and discourage oxidation of carbon contained in the waste.

At best, the specification of Australian Patent Application No. 30628/77 includes a step of forming a fluidised bed of chlorinator waste and treating it with oxygen under conditions which promote conversion of ferrous chloride to ferric chloride and ferric oxide. This contrasts with the conditions selected for the reaction of the present invention, ie. conditions which promote conversion of metal chlorides into metal oxides and discourage oxidation of carbon contained in the waste. Furthermore, chlorine gas is not produced by the process defined in Australian Patent Application No. 30628/77.

The specification of Australian Patent Application No. 46786/79 does not describe a process for recovering chlorine from chlorinator waste, which includes the step of forming a fluidised bed of chlorinator waste in a fluidising gas containing oxygen and treating the chlorinator waste with oxygen. It discloses a process which includes a step of oxidising ferrous chloride in the presence of an oxidising agent comprising oxygen. The ferrous chloride is not contained in raw chlorinator waste, it is ferrous chloride that has been subjected to prior treatment steps. Furthermore, the ferrous chloride is treated with oxygen under conditions which promote the formation of ferric chloride and ferric oxide. The ferrous chloride is not treated with oxygen under conditions which promote conversion of metal chlorides into metal oxides and discourage oxidation of carbon contained in the waste. Nor is chlorine gas recovered from the process.

The specification of US Patent No. 4994255 does not describe a process for recovering chlorine from chlorinator waste which includes the steps of forming a fluidised bed of chlorinator waste in a fluidising gas containing oxygen and treating the chlorinator waste itself with oxygen.

As set out in Table 1 of page 14 of the specification of the present application, chlorinator waste typically contains in excess of 20% carbon. The specification of US Patent No. 4994255 acknowledges that chlorinator waste typically contains from 20-25% by weight of carbon (column 4, lines 1-4). The specification of US Patent No. 4994255 then goes on to describe a number of means for removing carbon from the chlorinator waste and states in column 4, lines 22-26 that:

"The presence of too much carbon in the ferrous chloride containing mixture from a total chlorinator is undesirable because it consumes too much oxygen in burning and forms too high a concentration of carbon dioxide".

The specification then goes on to describe a process for recovering chlorine gas from ferrous chloride containing less than 12% carbon. Furthermore, the specification states at column 4, lines 19-22 that:

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28 June 2000

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"The carbon content in the condensed ferrous chloride solid is then burned with oxygen to supply heat required to keep the fluidised bed medium hot, and to supply heat lost through the wall of the reactor."

Therefore, the process described in US Patent No. 4994255 describes a process in which excess carbon is removed and the remainder is burnt to provide heat.

On the other hand, in the present invention, reaction conditions are selected that discourage oxidation of carbon contained in the waste.

Favourable reconsideration of the application is respectfully required.

Yours respectfully